

# PATENT SPECIFICATION

DRAWINGS ATTACHED

832,231



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## COMPLETE SPECIFICATION

### Improvements in Spray Guns for Grinding or Polishing.

I, NORMAN IVES ASHWORTH, a British Subject of 49 High Street, Henley-in-Arden, do hereby declare the invention for which I pray that a Patent may be granted to me and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to spray or discharge guns for grinding or polishing of the type comprising a gun body having a passage longitudinally therealong from the rear to the front for feeding a mixture of abrasive particles and water to a gun nozzle at the front of the passage, an air conduit passing from the rear to the front of the gun so that the front end forms a compressed air discharge nozzle axially of and concentric with and at the rear of the nozzle of the gun for the purpose of propelling the abrasive mixture from the gun nozzle.

According to the present invention, a spray or discharge gun of the type set forth is characterised in that the body of the gun is formed as a single casting and is itself shaped to form passages arranged longitudinally of the gun for a mixture of abrasive particles and water for compressed air, the front end of the air passage being fitted with a tube forming a discharge nozzle for the air and the rear end of the air passage being coupled to an air supply pipe.

In order that the invention may be clearly understood and readily carried into effect, reference may be had to the accompanying drawing, which illustrates in central cross section a gun constructed according to this invention.

According to a convenient embodiment of the invention, the interior of the body of the gun 1 is cylindrical at the front end and the cylindrical body of the gun nozzle 2 is fixed therein by means of a screwed cap 3, the nozzle having a cylindrical bore therethrough which flares outwardly at the rear end to give an enlarged inlet mouth for the inflow of the

abrasive mixture. An air passage 4 passes longitudinally along the body 1 in axial alignment with the gun nozzle 2 and an air discharge nozzle 5 is fixed therein. The air discharge nozzle 5 is in alignment with the gun nozzle and is distanced from the rear of the gun nozzle and the chamber 6 behind the gun nozzle passes rearwardly for a distance along and around the air discharge nozzle so that the air discharge nozzle projects into the chamber. From this chamber a passage 7 passes longitudinally along the body to the rear thereof and is connected by a flexible conduit to a tank containing the abrasive mixture and the air passage 4 is connected to an air pipe.

The air pressure is conveniently one hundred to one hundred and ten pounds per square inch. The bore of the air discharge nozzle 5 is smaller than the bore of the gun nozzle and a powerful suction is produced in the chamber 6 behind the gun nozzle which draws the abrasive mixture from the tank and provides an efficient supply from the gun nozzle at a great pressure. The abrasive mixture passes longitudinally along the body of the gun and there is no abrupt change in the direction of flow, so that resistance to flow is reduced to a minimum. The air and the abrasive mixture, in this embodiment, enter the body of the gun at the rear. A hand grip for the gun is located on one side of the body forward of the pipe connections. The nozzle of the gun and the air discharge nozzle may be longitudinally adjustable.

#### WHAT I CLAIM IS:—

1. A spray or discharge gun of the type set forth, characterised in that the body of the gun is formed as a single casting and is itself shaped to form passages arranged longitudinally of the gun for a mixture of abrasive particles and water and for compressed air, the front end of the air passage being fitted with a tube forming a discharge nozzle for the air and the rear end of the air passage being coupled to an air supply pipe.

2. A spray gun for polishing and grinding substantially as herein set forth and shown in the accompanying drawings.

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# PROVISIONAL SPECIFICATION

## Improvements in Spray Guns for Grinding or Polishing.

I, NORMAN IVES ASHWORTE, a British Subject of 49 High Street, Henley-in-Arden, do hereby declare this invention to be described in the following statement:—

This invention relates to spray guns for grinding or polishing and it has for its object a gun which draws in the abrasive mixture and ejects same from the nozzle of the gun at a high velocity.

According to the present invention, a conduit for air under pressure passes longitudinally along the gun and the axis of the air discharge nozzle is in alignment with the axis of the bore of the nozzle of the gun. The passage for the abrasive mixture also passes longitudinally in the body of the gun into a chamber lying behind the nozzle of the gun, and surrounding the front of the air conduit, the nozzle of which is distanced from the rear of the bore through the nozzle of the gun. The air and the abrasive mixture of water and abrasive particles thus flow longitudinally through the gun so that the abrasive mixture is blown through the nozzle of the gun and there is a high reduction in pressure in said chamber giving a free inflow of abrasive mixture and there is not abrupt change of direction of the abrasive mixture.

According to a convenient embodiment of the invention, the body of the gun is made in two longitudinal halves conveniently as castings which are bolted together. The interior of the body is cylindrical at the front end and the cylindrical body of the gun nozzle is fixed therein, the nozzle having a cylindrical bore therethrough which flares outwardly at the rear end to give an enlarged inlet mouth for the inflow of the abrasive mixture. One half of the body of the gun has a raised longitudinal rib located inwardly from the side which is bored to form part of the air passage and an air nozzle pipe is a push fit therein. The nozzle pipe is in alignment with the gun nozzle

and is distanced from the rear of the gun nozzle and the chamber behind the gun nozzle passes rearwardly to the front end of said rib, so that the air nozzle pipe projects into the chamber. From the lower side and rear end of this chamber a passage passes longitudinally along the body to the rear thereof and is connected to a flexible conduit to a tank containing the abrasive mixture. A passage at the rear of the rib passes to the rear of the body of the gun and is connected to an air pipe. The two halves of the body of the gun are the same, except that said rib on one half nests in a recess in the other part, which recess continues rearwardly as a part of the air passage.

The air pressure is conveniently one hundred to one hundred and ten pounds per square inch. The bore of the air jet pipe is smaller than the bore of the gun nozzle and a powerful suction is produced in the cylindrical chamber behind the gun nozzle which draws the abrasive mixture from the tank and provides an efficient supply from the jet nozzle at great pressure. The abrasive mixture passes longitudinally along the body of the gun and there is no abrupt change in the direction of flow, so that resistance to flow is reduced to a minimum. The air and the abrasive mixture, in this embodiment, enter the body of the gun at the rear and the axis of the pipe couplings are in the longitudinal direction of the body. A hand grip for the gun is located on one half of the body forward of the pipe connections. The nozzle of the gun and the air jet pipe may be longitudinally adjustable. A rubber sealing ring may be engaged in a groove in the body to engage on the cylindrical surface of the nozzle of the gun.

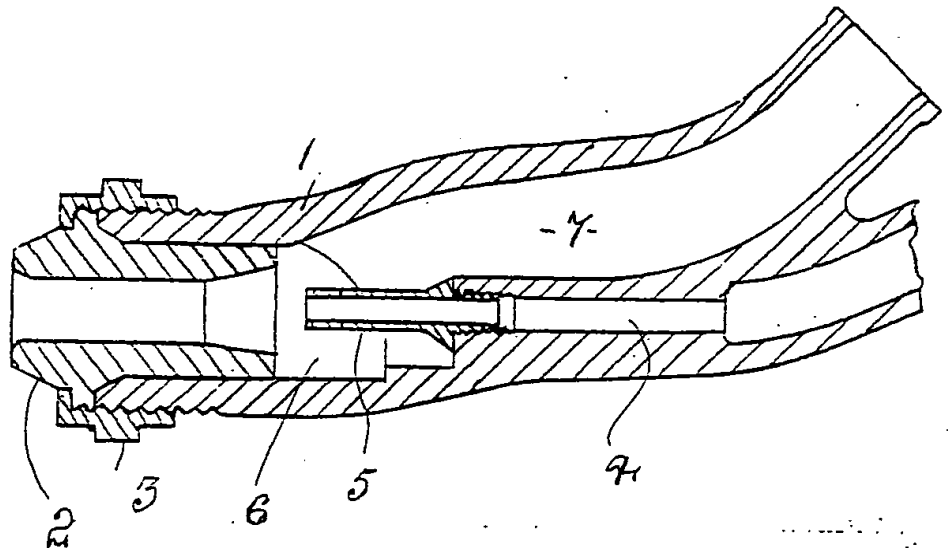
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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of  
the Original on a reduced scale.



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